

OBSERVATIONS UPON *POGONIA* (ISOTRIA)
VERTICILLATA.

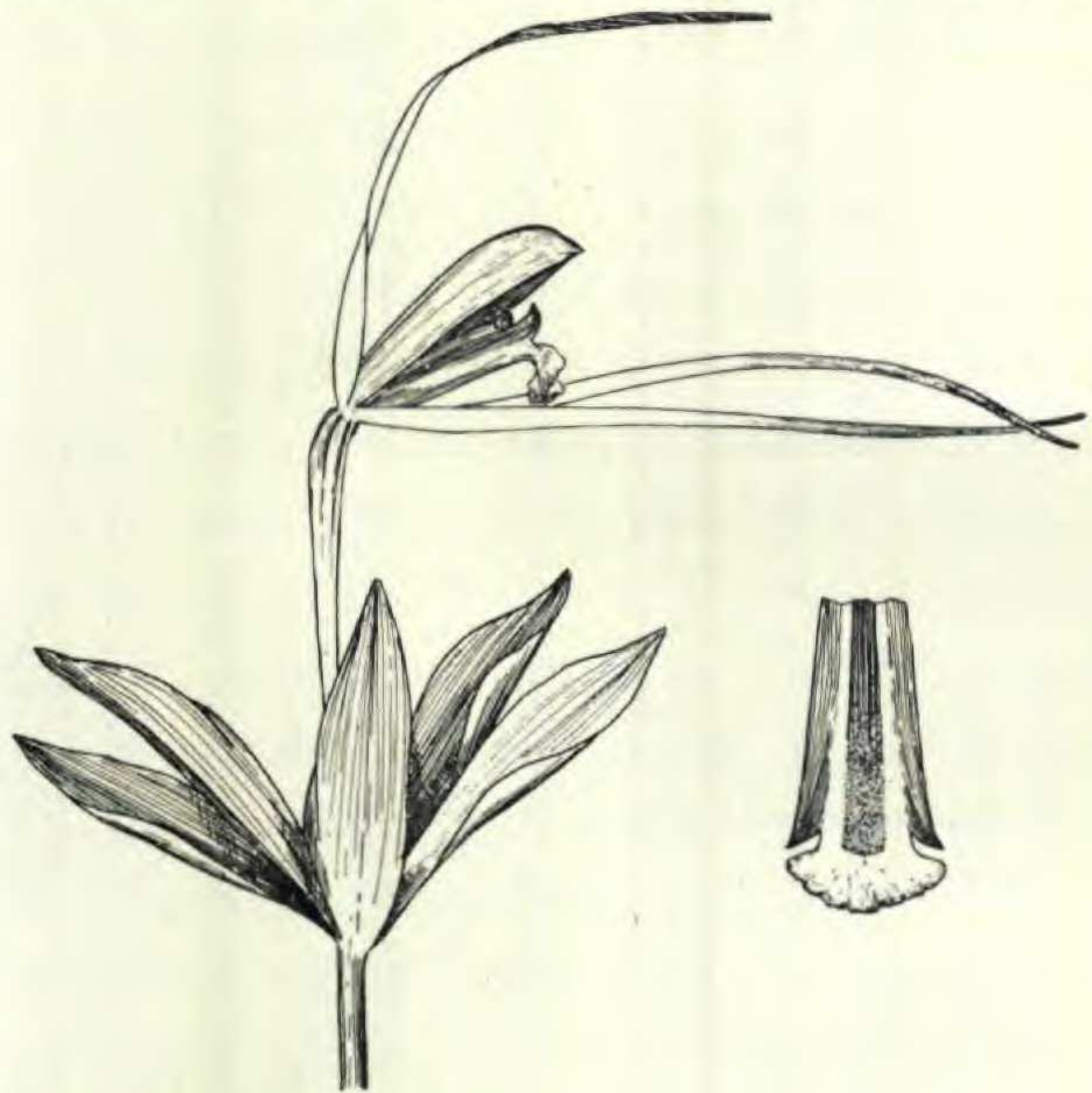
(Plate 65).

HOMER DOLIVER HOUSE.

A large colony of the rare orchid *Pogonia verticillata* (Willd.) Nutt. was recently observed near Washington, D. C., by Mr. Joseph H. Painter of the National Museum, and the writer. It was discovered that many if not all of the plants were connected in groups of two to four or more plants by perennial horizontal rhizomes, one to six feet in length. In the accompanying photograph (plate 65) a small group is shown, consisting of two mature flowering plants and a young plant without a flower, connected by a single root-system, the entire extent of which measured about three feet. There is also shown a single plant with two flowering stems.

Inquiry revealed the fact that the nature of the roots of this orchid is almost unknown, even to many of those familiar with it growing. In systematic literature we find the following scanty or misleading descriptions of the root of *Pogonia*:—Beck, "perennial"; Darlington, "root of fleshy fibers"; A. Gray, "root a cluster of fibers"; Britton's Manual, "rootstock and fibrous roots,—stems from long fleshy roots." Rafinesque, Eaton and Wood, do not mention the root. Recently, J. G. Hall (*RHODORA* 7: 49. M. 1905) mentions having seen roots of this species "18 to 20 feet long."

The perennial rhizome of *Pogonia verticillata* is horizontal and gives rise to new stems by buds which when partially developed give off fibrous roots, just above the origin of the new stem, similar in all respects to the somewhat fleshy, brittle rootstocks. These roots,



usually three to nine to a stem, vary greatly in length, some of them becoming rootstocks by the budding of new stems. Seedling plants must therefore develop this system of root-fibers before new plants can arise by budding. Seedlings are, however, very scarce and fully 90 per cent of the plants in any single, well developed colony arise by the budding process from the rootstocks. In age the rootstocks become very brittle and the older connections are easily destroyed and apparently in many cases perish from decay so that while it is common to find a colony a hundred feet in diameter, it is extremely rare to find a single system more than a few feet in extent, owing no doubt to the perishing of the connecting rootstocks after a few seasons. The individual plants once established are perennial, and flower several seasons at least, as is shown by the withered stems of former seasons, frequently found persisting and shown in plate 65.

The habitat of this species is usually given as "low woods," a statement which although not absolutely wrong needs some qualification. The species seems to prefer a moist, soft, rich and well divided leaf-mould and under these conditions is often found on comparatively dry hills, always under some shade, usually of deciduous trees but often evergreens and preferably on a slope with a northern or eastern exposure.

In some localities (observed in Central New York by the writer) it is found growing in sphagnum and the rhizomes under this condition attain a much greater length than in soil.

The coloring of the floral organs seems to have obtained scanty mention, perhaps from the fact that the plants usually turn black in drying. The two lateral lobes of the lip as well as the lateral margins are tinged and veined with a bright crimson-purple, most vivid at the apex of the lobes, while the broad, crenulate, deflexed middle lobe is pure white. The crest of the lip is green and papillose. The two upper petals are light green and arching above the lip nearly conceal it although the lip and petals spread somewhat apart in age. The filiform sepals are dull reddish-purple.

The whorl of lanceolate leaves is rarely fully developed or even expanded at flowering time as is usually shown in illustrations. The stem of *Medeola* with which this *Pogonia* often grows associated is green and glabrous, while that of *Pogonia* is purplish and covered with a whitish tomentum, affording a ready means of distinguishing between the two at a glance.

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